

THE NATURE CONSERVANCY NEWS

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COVER: Pencil sketch of great horned owl at Big Walnut Valley, Indiana, by William Zimmerman. See page 27.

INSIDE COVER PHOTO: Frozen waterfall, by Thomas Burke.

LAND CONSERVATION THROUGH PRIVATE ACTION

The Nature Conservancy is a national conservation organization, receiving its support from the public, whose objective is to preserve and protect ecologically and environmentally significant land and the diversity of life it supports.

To achieve this goal, the Conservancy purchases lands using its revolving fund which is then replenished through fund raising; accepts gifts of land; retains and provides stewardship for 60% of all projects; works with local, state, and federal governments to identify and protect important natural areas and acquires and manages land in advance of government agencies' ability to do so.

Some 1,088,137 acres of forests, swamps, marshes, prairies, mountains, beaches, and islands in 1,698 projects throughout the United States have been saved from destruction by the Conservancy since the acquisition of its first preserve in 1954.

A member-governed non-profit organization, The Nature Conservancy was incorporated in 1951 in the District of Columbia for scientific and educational purposes.

ANNUAL MEMBERSHIPS

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NEW PROJECTS

California

BOUVERIE WILDFLOWER PRESERVE — Addition — (Sonoma County). The Conservancy has acquired, in cooperation with the Sonoma County Park and Recreation Department, a 6/7 interest in 7 acres and was given the remaining 1/7 interest by the owner, David Bouverie. The tract will be added to the existing preserve which contains a lush growth of wildflowers. Management is the responsibility of the Sonoma County Park and Recreation Department.

LILLIAN DEVENDORF HOHFELD NATURE RESERVE (Elkhorn Slough)—Addition—(Monterey County). Donated by Mr. and Mrs. Thomas B. Porter under the auspices of the American Land Trust, the 96-acre area contains forestland and a freshwater lake that provides habitat for ducks and other migratory waterfowl. A stream flowing from the lake and across the property is the major freshwater inflow into Elkhorn Slough. Acquisition of the property will help protect the slough from increased development and sewage and pesticide pollution. Management of the area will be the responsibility of the Conservancy's Elkhorn Slough Project Committee.

BUNNELL VERNAL POOL (Sonoma County). The 1-acre tract, donated by Sterling and Katherine Bunnell, contains an excellent example of a vernal pool. Vernal pools are rapidly disappearing from their very limited range of California and southeast Oregon. The pool is undisturbed and contains a very rare plant species, which resembles *Pogoyne serpyllodes*. Management of the area will be the responsibility of the Western Regional Office.

Connecticut

WASHBURN PROPERTY (Town of Branford). Offered as a gift by A. Lincoln Washburn, the 16-acre tract contains a salt marsh, upland forest, abandoned quarries, and quarry scree. Vegetation is particularly diverse. Salt-meadow cordgrass (*Spartina patens*) is predominant and saltwater cordgrass (*Spartina alterniflora*) also exists in the area. The upland is wooded with oak and hickory dominating, and basswood dominates on the seaward slopes. The property will be managed as a nature preserve by the Branford Land Trust, Inc.

Florida

BIG CYPRESS—Addition—(Collier County). 174 acres were purchased by the Conservancy for the National Park Service as another addition to the Big Cypress National Freshwater Reserve. To date, the Conservancy has contributed 612 acres

towards creation of the Reserve, which is a major watershed that supplies the vast Everglades National Park with a constant flow of vital water.

WEST SHORE CONSERVATION (Hobe Sound)—(Martin County). A 500-acre area that protects the endangered Florida manatee was donated through the American Land Trust program by members of the family of the late Joseph V. Reed and the Hobe Sound Company. 490 acres will be managed by the U.S. Fish and Wildlife Service as an addition to the existing Hobe Sound National Wildlife Refuge, and 10 acres will be administered by the Town of Jupiter Island as a nature preserve. Also, a 9-acre tract fronting on the Intracoastal Waterway was donated to the Conservancy by Mrs. Houghton Metcalf and has been transferred to the U.S. Fish and Wildlife Service.

SANIBEL ISLAND—Addition—(Lee County). The Conservancy assisted the U.S. Fish and Wildlife Service in acquiring 30 acres of mangrove swamp. The tract will become a component of the "Ding" Darling National Wildlife Refuge Area, managed by the Fish and Wildlife Service.

Georgia

JONES BRIDGE (Fulton County). Located on the Chattahoochee River, the 35-acre area is unique for its shoals and white water. The Turk's cap lily, an endangered species in Georgia, is found on the property. A cooperative effort with the Georgia Department of Natural Resources (with funds provided by the Department, the Bureau of Outdoor Recreation, and donations from local conservation organizations), the area will be managed by the Department of Natural Resources for preservation as a component of the Chattahoochee River State Park.

Illinois

CEDAR GLEN EAGLE ROOST—Addition—(Hancock County). Located on the Mississippi River shoreline, the 68-acre area is an addition to the existing preserve, which is a major winter bald eagle roost. The tract is floodplain woods and supplies valuable day-perching sites for bald eagles along three-quarters of a mile of its wooded shoreline. Management of the area will be the responsibility of the Western Illinois University and the Illinois Chapter. The American Land Trust is fund-raising to complete the project.

EMMA VANCE WOODS (Crawford County). Donated by Mrs. John Miles, the 29-acre tract is covered primarily with white and red oak, ash, maple, and hickory. The Illinois Chapter will lease

the property to Lincoln Trail College for management and use as an outdoor education area.

MAYNEGAITE PARK (Cook County). Donated to the Conservancy by Marquette National Bank, Trustee, the 4-acre tract includes a 2-acre field and a small man-made pond. The area is an addition to Maynegait Park, and will be transferred or leased to the Olympia Fields Park District for administration.

Indiana

LITTLE BLUESTEM—WEINHARDT PRAIRIE (Vigo County). The 7-acre tract is an unusual sand prairie on the brink of an outwash terrace at the east edge of the Wabash River floodplain. It is the last known example of sand prairie dominated by little bluestem in Indiana and probably the easternmost sand prairie in the prairie-peninsula section of Illinois and Indiana. Other grass species present include indiangrass, round-head lespedeza, indian plume, panic grass, flowering spurge, and New Jersey tea. The area is also of historical interest because it contains a section of the long-abandoned Wabash and Erie Canal. Funds are being raised through a joint effort by a committee of the Indiana Chapter and the Indiana State University Foundation. The property will be transferred to the Trustees of Indiana State University for management.

Maryland

PATAPSCO STATE PARK (Carroll County). The Conservancy assisted the State of Maryland in acquiring the 380-acre property, valued at well over \$1 million. Consisting of abandoned farmland, upland hardwoods, and pastureland, the area will be managed by the state's Department of Natural Resources and included in Patapsco State Park.

Michigan

GRASS RIVER PRESERVE—Additions—(Antrim County). Acquired with partial funds from the Soil Conservation Service, the 4 additions total 568 acres and will be added to the present 144-acre Grass River Preserve. The existing preserve and these additions provide habitat for bald eagles, osprey, black bear, and otter. Whistling and mute swans and a variety of other waterfowl are common to the area. The land will be managed by Antrim County and the Conservancy's Grass River Natural Area Committee as a nature preserve. Remaining funds are being raised by the Committee.

BIG BEAVER CREEK (Macomb County). An area of 16 acres, the property lies on both sides of

Big Beaver Creek and contains about 10 acres of floodplain. The Conservancy is acquiring the property in a cooperative effort with the City of Sterling Heights. Big Beaver Creek will be administered by the City as a natural park area.

POINTE MOUILLEE — Addition — (Monroe County). The 28-acre area is part of the once-extensive Lake Erie marshlands, which have been greatly reduced and now exist only in scattered pockets along the Michigan portion of the Lake Erie shoreline. The flat, marshy land is a stopping place for large numbers of migratory waterfowl that pass through the area in the spring and early fall. Purchased in cooperation with the Michigan Department of Natural Resources, the property will become part of the Pointe Mouillee State Game Area.

Minnesota

CHIPPEWA NATIONAL FOREST (Itasca County). In a cooperative effort with the U.S. Forest Service, the Conservancy acquired 1,027

acres located in the east-central portion of the Chippewa National Forest. The rolling land contains many small swamps and bogs interspersed by upland forests of pine, birch, aspen, and northern hardwoods. The area provides habitat for beaver, moose, bear, deer, grouse, and a variety of ducks. Understory plants include partridge fern and northern beech fern, both unusual in this part of Minnesota. The property has been transferred to the U.S. Forest Service for inclusion in the Chippewa National Forest.

ROTHSAY WILDLIFE MANAGEMENT AREA —Addition—(Wilkin County). Acquired in cooperation with the Minnesota Department of Natural Resources, the area is a 40-acre mosaic of mesic to wet prairie. The mesic areas are dominated by big bluestem, little bluestem, and indian-grass. The wettest areas are artesian springs surrounded by cattails, willows, reeds, goldenrods, and sunflowers. The property lies within the statutory boundaries of the Wildlife Area and within an area having a high concentration of prairie chickens. It will be transferred to the Minnesota Department of Natural Resources for management.

Missouri

WAH'KON-TAH PRAIRIE — Addition — (St. Clair County). This 318-acre addition to the existing 320-acre tallgrass prairie brings the total preserve to 638 acres. Funds for the purchase were provided by Miss Katharine Ordway. The area will be leased to the Missouri Department of Conservation for management.

Montana

ELK TRAIL RANCH (Powell County). A 1,800-acre conservation easement donated by Edna D. Brunner through the American Land Trust, the property includes over 3 miles of the Blackfoot River. The Ranch provides habitat for white-tailed deer, elk, black bear, bobcat, lynx, and various species of waterfowl. The land is adjacent to the Helena National Forest. Management of the area will be the responsibility of the donor.

GOODRICH RANCH (Gallatin County). The Conservancy has acquired, in a cooperative effort with the U.S. Forest Service, a 3,677-acre inholding in the Gallatin National Forest. The property is within the headwaters of Taylor Fork of the Gallatin River, nationally known as a "blue ribbon" trout stream. Vegetation consists of lodgepole pine, interspersed with small meadow parks and bogs. Above 8,000 feet, the vegetation includes patches of fir and whitebark pine scattered





through alpine grasslands and meadows. Both elk and moose winter on the property. The ranch also provides habitat for grizzly bears. Valued at over \$1 million, the land will be transferred to the U.S. Forest Service for management.

New York

ATLANTIC DOUBLE DUNES—Addition—(Suffolk County). Donated by the estate of James Tyson, the 8-acre property will be added to the Atlantic Double Dunes Area which has been given the highest rating in the Atlantic Coastal Plain Theme Study, done by the National Park Service. The preserve contains extremely high primary and secondary dunes as well as sandy beach. Management of the area will be the responsibility of the South Fork-Shelter Island Chapter.

TYSON FIELD (Suffolk County). A partial gift from the owner, the 32-acre area is farmland surrounded by hedgerows and woods. The property will be transferred or leased for management to the Rock Foundation.

Oregon

BONNIE LURE STATE PARK (Clackamas County). Located at the confluence of Eagle Creek

and the Clackamas River, the 95-acre area is a typical riparian hardwood-western hemlock zone ecotone. Hardwoods common to the area include red alder, black cottonwood, and willow. The property provides habitat for river otter, beaver, wood duck, American merganser, kingfisher, and many species of song birds. Acquired in a cooperative effort with the state, the property will be transferred to the Oregon Scenic and Wild Rivers Commission for management as a natural area and recreational park.

SANDY RIVER GORGE—Addition—(Multnomah County). A fund-raising project of the American Land Trust, the 26-acre addition fronts on the Sandy River, which is the last undisturbed spawning ground for salmon and steelhead below the Bonneville Dam. The Sandy River Gorge Preserve is a project of the Conservancy, the Bureau of Land Management, Multnomah County, and the State of Oregon. Located only 30 minutes from Portland, the Gorge provides habitat for bear, river otter, elk, cougar, and 5 endangered species: osprey, bald eagle, Pacific giant salamander, rough-skinned newt, and Oregon slender salamander. Conservancy-acquired land for the preserve presently totals 350 acres.

WAYNE MORSE RANCH (Lane County). Acquired in cooperation with the City of Eugene, the 27-acre ranch is the home of the late Senator Wayne Morse. The area's woodlands consists of a Douglas fir grove and an Oregon oak grove. The Eugene Parks and Recreation Department will own and manage the ranch as a park and historical and recreation center.

Pennsylvania

VALLEY FORGE NATIONAL PARK (Chester County). With assistance from the Conservancy, the National Park Service purchased from the Keene Corporation a 46-acre inholding for inclusion in the recently authorized Valley Forge National Historical Park. The property, valued as high as \$3.5 million, is the first new land acquired for the 2,250-acre park in 40 years. Valley Forge, the winter campground of General George Washington, had been a State Park since 1893. When the entire park and the addition were transferred to the National Park Service for management, Valley Forge State Park became a national park.

South Carolina

JONES GAP (Greenville County). Under the auspices of the American Land Trust program, the

Conservancy assisted the State of South Carolina in acquiring 2,130 acres. The property contains a mature Appalachian oak forest dominated by white oak and northern red oak. Several rare and endangered species of plants are present, including walking fern, fragile fern, and several uncommon orchids. The land surrounds a valley that contains several streams which feed the Middle Saluda River, one of the best remaining streams for brook and rainbow trout in the south Appalachian region. Jones Gap has been transferred to the South Carolina Department of Parks, Recreation, and Tourism for management.

Washington

SKAGIT RIVER BALD EAGLE SANCTUARY—Additions—(Skagit County). Two recent additions to the sanctuary totaling 768 acres were acquired via the American Land Trust from the Simpson Timber Company and the Scott Paper Company. A 193-acre parcel is a partial gift from Scott Paper; the other addition consists of a 465-acre purchase and a 110-acre gift from the Simpson Timber Company. Now totaling approximately 1,000 acres, the sanctuary provides habitat for the largest wintering population of northern bald eagles in the Pacific northwest. The American Land Trust is assisting the Conservancy in raising \$40,000 to complete the project. Skagit River is managed by Washington's State Department of Game.

Wyoming

HUIDEKOPER EASEMENT, JACKSON HOLE—Addition—(Teton County). The Conservancy has accepted a donation from Virginia Huidekoper of one acre and a conservation easement on an adjacent 10 acres. The property consists of rich riparian habitat, containing willow, spruce, cottonwood, and pastureland. Waterfowl, moose, elk, beaver, muskrat, hawk, and osprey are present. The tract is part of the scenic and ecologically significant Snake River Valley in Jackson, Wyoming.

U.S. Virgin Islands

BATTERY GUT PRESERVE—Addition—(Cruz Bay Quarter, St. John). Adjacent to land previously donated to the Conservancy, the 41-acre parcel contains a 1½-mile stream bed, rocky boulders, large tropical trees, wooded slopes, and a profusion of semi-tropical plants, such as bromeliads and orchids. With this addition, the preserve will total 85 acres. Donated by Messrs. Carl Gerstacker, Herbert Dow Doan, and C. Benson Branch, the tract will be managed by the Con-



Why Save Diversity?

by G. Jon Roush

The mission of The Nature Conservancy is to protect America's natural diversity by finding and protecting rare and threatened habitats, natural areas, and natural features. Why is it important to do so? What difference does it really make if we hasten the processes of extinction and lose some species of clam, or if we plow the last remaining example of a kind of prairie?

The reasons for protecting natural diversity are complex, and not everyone agrees in each instance, but everyone should be able to agree on four basic premises, any one of which makes the preservation of natural diversity an imperative of the most serious order. The four premises are these: diversity promotes the stability of ecosystems, diversity increases the possibility of future benefits, diversity is a source of human delight, and protecting diversity is an ethical necessity.

Diversity and Stability

What's the use of alligators? For ages, alligators have snoozed, bred, and fed in "gator holes," large depressions scooped out of the ground by the alligator, which fill with water to form permanent

pools. Each of these pools houses its own world of algae, ferns and other plants, fish, and amphibians, some of them nourished by droppings and bits of food left by the alligator. In dry years these gator holes and trails between them form the only sanctuary for many of the Everglades' creatures, which will move out again to repopulate the area when the rains return. Near the gator hole itself, the female alligator makes a large nest of sticks and mud every year; and over the years, these nests can build up to form dry islands, supporting trees that provide nesting places for herons and other birds. Although the gator at the bottom of the tree may eat an occasional chick, it is also an unwitting sentinel, keeping tree-climbing predators away.

When the alligators themselves fell prey to man's whim to have shoes and handbags made from their hides, this ancient arrangement was upset. Gator holes filled in and dried up, no longer serving as centers of life. The area's hydrology suffered, and the whole system was weakened. Meanwhile, fishermen complained that fishing in the Everglades was not what it used to be. Bass and other sport fish were being devoured by spotted gar fish,

whose numbers were increasing every year. What had been keeping the gar in check? Its natural predator, the alligator.

It is the diversity of the Everglades system that holds it together and sustains it through lean years. Remove any element of that diversity, and the system may be weakened. Remove a key element like the alligator, and the system falters disastrously.

A stable ecosystem is one that can withstand changes without going haywire. Diversified ecosystems tend to have many overlapping systems of checks and balances so that the system as a whole is buffered against the impact of any particular change. When American farmers a hundred years ago replaced diverse native prairies with vast monocultures of single species of corn and grain, they helped set the stage for the dust bowl of the 1930's. In parts of the Midwest it was only the remnant areas of diverse natural prairie land that kept any soil intact during that terrible drought.

Indeed, the reduction of diversity is almost always expensive. When we spray a neighborhood for mosquitoes, for example, killing or driving away many of the mosquitoes' natural predators and breeding a race of mosquitoes resistant to the insecticide, we have set ourselves up as the perpetual guardians of that area, responsible for expending our time, money, and ingenuity to keep the mosquitoes down and the system going. We are driven by the well-grounded fear that if we ever let our guard down—now that the natural mosquito controls have been reduced—the mosquitoes will return tenfold and more savage than ever.

But if we are ever to reestablish health in systems that we have impoverished, we will need a reservoir of genetic resources to draw on. Once extinct, a species cannot be re-created. Consequently, The Nature Conservancy devotes much of its effort to protecting species and ecosystems that are rare and endangered. Although an area or endangered species habitat may not be particularly diverse by itself, it protects a part of the future diversity of the planet.

Diversity and Future Benefits

France's finest grapes grow on root stocks imported from America. This root stock produces its own grape that is inferior for eating or wine making, and Americans were in the process of eradicating it when a virulent rust attacked the roots of native vines in Europe. The American stock was found to resist this rust, and so the European vines were grafted onto it, saving the European wine industry.

Such ecological rescues are not unusual, nor are the discoveries of totally new possibilities. The potential utility of living species is so great that the U.S. Department of Agriculture has established a separate unit, the Medicinal Plant Resources Laboratory, to identify new, useful plant substances. For example, some species of the Ethiopian plant genus *Maytenus* produce substances called maytensines, which show promise for the treatment of cancer. Unfortunately, the Ethiopian plants produce this substance in such minute quantities that researchers had trouble collecting enough for experimentation. They searched for another species that might produce maytensines in more quantity, and they found it in Kenya, in a rare plant that happened to be protected in a forest preserve. Now the tests could be continued, and they were more promising than ever, but still a more productive source of maytensines had to be found. Once again a forest reserve yielded the right plant, but in South Africa. This time the plant was of the closely related genus *Putterlickia*, again rare but a better producer of maytensines. This species, which the world would never have missed if it had become extinct five years ago, is now a major target for conservation.

Usually the easiest, most efficient, and surest way to conserve a species is to preserve its habitat. In fact, it is most useful to preserve a diverse set of habitats to accommodate variations within species and evolution of new species.

For example, a family of Hawaiian birds known as the Honeycreepers (*Drepanididae*), contained 22 distinct species when Europeans began to settle the islands in the early 19th Century. Some looked like finches, others like woodpeckers, warblers, or parrots. All of these species were apparently descended from one common species, a finch-like bird that arrived in the islands about a million years ago. Each descendant species found its own ecological niche on the islands. Each adapted to a particular habitat with distinct food and territory, permitting all the final species to get the most from the islands with minimal competition among themselves.

Moreover, two or more ecosystems can interact with each other to support diversity, even when they are not physically connected. Studies of islands have shown that the species count on any island is related to its distance from other islands or the mainland. The closer two island ecosystems are to each other, the more the migration of species from one island to the other, the slower the extinction rates, and the greater the diversity.

In fact, natural diversity of any sort tends to further species diversity. Protect a representative array of ecosystems, and you have dramatically



The crested honeycreeper is one of 22 distinct species which evolved from one common species in Hawaii. Due largely to destruction of the native forest and introduction of disease-carrying insects, many of the species are now extinct. The crested honeycreeper is very rare and persists only on the northeast slope of Haleakala volcano on Maui.

improved the chances of all the species that inhabit them. The undeniable yet unpredictable utility of living species is sufficient grounds for mankind's caring about such things, for a species is truly "useless" only when it is extinct.

Diversity and the Quality of Life

It is reasonable to assume that the capacity to enjoy natural diversity is innate in every human being, that indeed every human being has a genuine need for natural diversity, and that to be deprived of that diversity pains even the staunchest lover of cities, consciously or unconsciously.

Early man evolved in a diversified savannah-forest habitat. As many anthropologists have pointed out, the evolution of *Homo sapiens* required the prior appearance of plants that produce seeds, with their concentrated food value to fuel the high metabolism of mammals, especially primates, with energy-consuming brains. Early man, who fed on seed-feeders and eventually learned to cultivate seed-bearing plants himself, was especially fit for and predisposed to live in the diversified environment at the edge between forest and grassland. That predisposition lives on in modern man. When our forefathers, for example, moved west into the American wilderness, they made

clearings in the forest and planted trees on the plains, as if re-creating our original habitat.

In other words, we may have good genetic reasons for liking a field of grasses and wildflowers, for preferring the biologically diversified habitat that nourished and protected us as a species and provided the earliest arena for the exercise of our physical and mental flexibility. Today any natural place that people call beautiful is almost certain to be a diversified, healthy ecosystem, whether it be a marsh, a tallgrass prairie, a desert, or an alpine meadow. Variety *does* seem to be the spice of life.

Probably the more complex human civilization becomes, the more diverse the set of natural resources needed to sustain it. Unfortunately this need is often hidden, because we see only the products manufactured from those resources. Yet even if we could substitute a totally artificial environment for the natural one, something would be missing. What would it be like to adapt totally to the products of other human minds? For most of us it would be a nightmare, because we need to perceive a permanent, autonomous reality of which we are a part. As one of Berthold Brecht's characters put it, "We city-dwellers get dazed from never seeing anything but use-objects; . . . trees,

at any rate, have something independent about them outside myself." Anyone who has felt a mountain's indifference to human events will understand those words. It is as if our awareness of our very dispensability reassures us that the basis of being is itself firm and real. Such reassurance depends on the presence of natural diversity, which manifests the complexity and mystery of natural reality.

We build great libraries to house the diverse elements of our cultural heritage; why not do the same for the elements of our natural heritage? Not everyone would avail himself of the opportunity, just as not everyone uses libraries. But those who did would be enriched. Only by directly experiencing an ongoing culture can one become part of it, and only by directly experiencing diversified nature can one sense one's own peculiar fitness in it. Fortunately, in most of us the impulse toward diversity seems to be still strong. When people talk about going to "the country" for vacation, they do not mean simply getting out of town; they mean finding some version of diversity. A corn field is "natural" and out of town, but it is also fairly monotonous and hardly anyone vacations there.

For reasons of their own sanity and well being, people need a holistic, organic perception of their milieu and their place in it. Prolonged monotony of any sort produces neurosis, for which cultural and natural diversity are the only effective buffers.

The Ethics of Diversity

Even if natural diversity could be shown to have nothing to do with sustaining life on earth, even if we could identify certain species as once and for all useless to us, and even if we decide that we have no inner need for the presence of diversity, we would still have an ethical problem to face before we could countenance the reduction of natural diversity.

As a natural species, *Homo sapiens* is under the same ecological constraints as any other species. If we ignore the ecological facts of life and really try to act as if we had "conquered" nature, sooner or later nature will get even, because no human is that smart. Our best strategy with nature is to adopt the attitude of humility and respect. That is the message of the Land Ethic. That attitude allows us both to be true to ourselves as natural creatures in a natural environment and to exercise human, rational choice in the most prudent way. "In short," says Aldo Leopold, "a land ethic changes the role of *Homo sapiens* from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow members, and also respect for the community as such."

A workable land ethic calls for a serious commitment. It requires that we understand the consequences of our actions for other living things, that we accept responsibility for them, and that before we intervene in the functioning of an ecosystem we make sure we have adequate justification. It further requires, as Leopold also pointed out, that we acknowledge the right of other species to continue their existence, "and, at least in spots, their continued existence in a natural state."

Of course someone could argue that ethics only apply to people. Nevertheless, because the web of diversity connects us all, the ethical problem persists. If a farmer drains a marsh in order to replace its abundant diversity with a monocultural empire of soybeans, then quite possibly he has done me some ecological harm. I am entitled to ask by what right he does so and why his rights should supersede mine in this case. If, in addition, the soybean industry happens to cause the extinction of a species or two, it has denied the rest of us an irreplaceable genetic resource. The obliteration of an element of diversity can be a violation of the rights of a great many people.

What is more, the rights that are violated are not ours alone but those of future generations as well. It is not easy to describe the extent of our obligation to posterity, and the whole question can get buried under a mountain of probabilities and "what ifs." What should we save? What will future generations need or want? What would they miss? How much will they want it, so that we know how much we should be willing to sacrifice in order to save it? On the other hand, what if they will not deserve our beneficence? They may be a pack of wastrels themselves, or a race of technocratic automatons, or extinct.

The best we can do in the face of the uncertainties of the future is to recall the land ethic, summon up our humility and respect, and like Leopold's tinkerer who does not understand the machine he is trying to fix, save all the pieces. In fact what is likely to happen is what has always happened. We will save what we love, partly because we want the things we love to endure and partly because we assume that our children will be like us and will love the things we value too. In preserving natural diversity, we are preserving options, the full spectrum of present possibilities, in case one or another is important to someone later. And we are preserving chances for future evolution as yet unrevealed, including perhaps those of *Homo sapiens*. We have inherited a world of extraordinary variety and complexity in which people have survived and flourished for eons. If we love that kind of world, we have no choice but to try to preserve its diversity.

The 1982 Program:

A Plan for Preserving Biological Diversity

by L. Gregory Low

In recent years The Nature Conservancy has recognized that the first objective stated in its by-laws—to preserve natural areas for biological diversity—deserves top priority. This objective must be met because of the great number of species and ecosystem-types now facing extinction. Once lost, they are lost forever. Of all the Conservancy's objectives, this is the only one where our failures are *final*. Furthermore, preserving natural areas for the preservation of biological diversity allows us to fulfill our other objectives as well, such as: preserving land for scientific research, for recreation, education, and for experimentation with new techniques for safeguarding land. Finally, while many people and organizations are pursuing our other objectives, no one else nationally has taken on the critical, difficult job of systematically preserving America's natural diversity.

The tasks which must be completed to meet this objective can be divided logically into three different areas:

1) **Identification.** This first task entails identifying what species, natural features, and ecosystems are rarest, least protected, and most endangered. The elements must be precisely located, and a system must be developed that will allow the Conservancy to be constantly aware of their status.

2) **Protection.** The Conservancy must move quickly and efficiently to acquire or otherwise protect natural areas that are threatened with destruction and to discourage the threats themselves.

3) **Stewardship.** The Conservancy must maximize the chances for continued future protection by creating and supporting private and public systems for the sound management of natural areas.

In accordance with these three main tasks, the Conservancy has developed a five-year plan which sets forth specific, measurable objectives to be achieved by 1982. The plan includes strategies designed to meet these objectives, an organizational structure that can implement the strategies, and a budget. In many respects, the 1982 Program represents a continuation of the Conservancy's ongoing activities.

Concerning the first task, identification, the

Conservancy now has nine Natural Heritage Programs to conduct inventories on a statewide basis. We plan to initiate 25 such programs by 1982. In other states, manual systems will be developed for using existing inventory data. An ongoing national natural areas inventory system also will be developed.

To perform the second task, protection, land acquisition will continue to be our most important protection technique. At least 250 natural areas will be acquired annually, with the ecological quality, complexity, and cost of projects increasing each year. To insure financial flexibility to support this acquisition program, the Conservancy will require a \$20 million revolving Land Preservation Fund. We will experiment with and use other protection techniques as well, such as advising government agencies, working with private landowners, maintaining registries of critical areas, disseminating inventory data, etc.

The Conservancy's 1982 stewardship objectives call for adequately managing preserves, transferring selected preserves to other private and public conservation agencies, and developing scientific and educational programs on selected areas. To effectively use our limited stewardship resources, we will continue to choose carefully the areas that we own and manage.

The strategy of the 1982 Program will be implemented primarily at the state level, since individual states provide the best arena for Conservancy action. Comprehensive protection programs will be employed in those states where systematic natural area inventories have been completed (Heritage states). In states without reliable inventories, we will rely on high-quality acquisitions as our major protection tool. Staff support will be provided for all states, either through a state director or a multi-state field representative.

Volunteers will play a key role in implementing the 1982 Program. For example, volunteers can provide data for natural area inventories, assess the degree of threat to priority sites, and notify private landowners of the unique character of their land. Volunteers will continue to be the Conservancy's primary resource for land stewardship and fundraising. In addition, a strong volunteer constituency is essential to insure the continuity of state natural area inventories and protection programs. Accordingly, the Conservancy will seek a membership base of 100,000 by 1982.

Through its three primary tasks—identification, protection, and stewardship—the 1982 Program provides the means whereby we can most effectively apply our limited resources towards our objective of preserving natural areas for biological diversity.

by Ken Margolis
Northwest Field Office

A MOUNTAIN SAVED...





...IS A MOUNTAIN EARNED

Conservancy helps preserve vast Montana wilderness

In the early years of this century, when people still believed that clean air and clean water were limitless and free, the Anaconda Copper Company boasted that the smokestack on its Washee smelter mill near Anaconda, Montana, was the world's tallest. It also was probably the world's deadliest.

Mysterious livestock deaths began occurring in 1906. They seemed to concentrate in the path of the prevailing westerly and southwesterly winds, carrying the Washee's smelter smoke plume toward Mt. Haggin. As evidence mounted that the deaths were connected to particulate fallout from the smelter (largely oxides of zinc, arsenic, lead, and copper), there were rumblings of lawsuits against Anaconda. Obviously, the company felt threatened, but at that time it did not possess the technology or knowledge to cure the situation. In order to protect itself, Anaconda responded by purchasing and amassing all the lands that were, or conceivably could be, affected by fallout from the smelter smokestack.

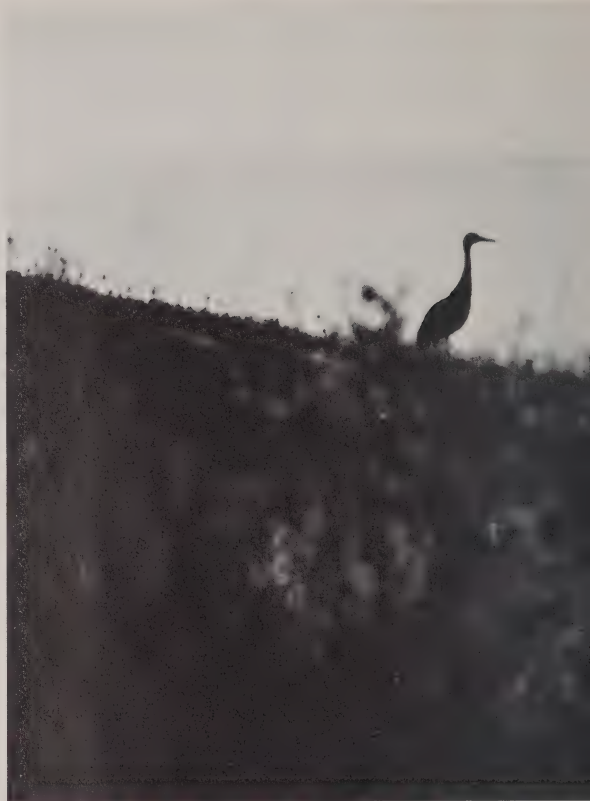
The result was the formation of the 154,000-acre Mt. Haggin Ranch, as large and varied as a small kingdom. Comprised of two units—one directly north of Anaconda, and the other to the south—the ranch includes rugged mountain peaks and ridges, high mountain valleys, and rolling foothills. A fisherman's paradise, the area also contains 20 mountain lakes, numerous ponds, and over 60 miles of trout streams.

Today, the Anaconda Copper Company uses sophisticated pollution abatement equipment, and it is possible to see the healing that has taken place in recent years. Areas of land which were completely denuded 20 years ago now support sparse ground cover. Pine and larch that had become stunted are now showing good growth each spring.

Best of all, most of the Mt. Haggin Ranch has been unaffected. The wealth and variety of wildlife testifies to the essential health of the ecosystem: mountain goats and bighorn sheep abound in the high country; they can even be



Wildlife at Mt. Haggin includes elk (top) and bighorn sheep. Greater sandhill cranes (top right) nest on the ranch.



found on the steep, ragged ridges of the Continental Divide's spine, hundreds of feet above the tree line. Moose, deer, and elk wander throughout the ranch; the northern part of the property contains winter habitat crucial to all these species. Bird life on Mt. Haggin is as varied as it is anywhere else in Montana. The ranch is particularly exciting for bird watchers because of nesting greater sandhill cranes and reported sightings of the endangered peregrine falcon.

Mt. Haggin also contains a few outstanding geological features: Garrity Cave is relatively unexplored and contains dramatic stalactite and staligmite formations. Several large waterfalls decorate Lost Creek; in some places limestone cliffs jut 1,500 feet above the creek.

However, Mt. Haggin's most outstanding feature is its size. Ecologists know that the long-term viability of ecosystems, watersheds, and wildlife habitats is directly related to their size or the extent of their buffers. Areas too small to incorporate the complex diversity necessary for self-renewing systems must be heavily managed if they are to be saved from degradation.

Because Mt. Haggin contains over 15 square miles of wilderness, 20 miles of the Continental Divide, and the better part of 2 watersheds, the ranch comes very close to being a self-sufficient



ecological unit. Furthermore, the property contains an additional 23,520 acres of essentially roadless area adjoining the Anaconda-Pintlar Wilderness, which has the potential for wilderness designation also.

With size comes complexity, and that generalization seems to hold true in human matters as well as in large ecosystems. The legal description of Mt. Haggin takes up over 50 legal-sized pages. There are occasional problems with disputed water rights at a few spots on the ranch, since at 10,000 feet, it is difficult to tell just where a property line runs. There is a Montanan who has a deed on one section that allows him to place a statue anywhere on his tract, but not to make any other use of the land.

The Conservancy has been working to save Mt. Haggin since 1969. Negotiations have involved not only the fee owner—Mt. Haggin Livestock, Inc.—but also parties holding grazing and timber contracts, a variety of public agencies, and the Anaconda Company, which still holds some rights over the portion of the property not yet purchased by the Conservancy.

Acquisition of the initial 76,000 acres completes the first phase of the Conservancy's option to purchase Mt. Haggin Ranch, and triggers the right to buy the remainder of the ranch within

the next five years. The Conservancy is allocating property to two ultimate recipients: the U.S. Forest Service and the Montana Department of Fish and Game. The Forest Service will be responsible for managing those lands that have the potential for wilderness designation, while the Fish and Game Department will manage lands with special importance as winter game habitat.

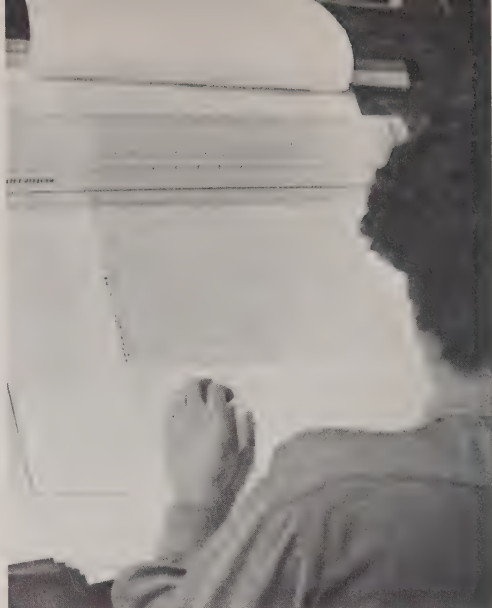
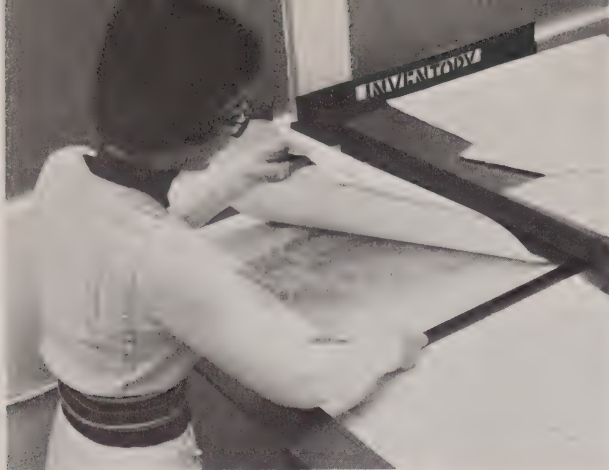
Traditionally, the Conservancy assists in preserving lands like Mt. Haggin by handling the financial and legal aspects of land purchases. In the case of Mt. Haggin, financing was made possible by a generous gift of \$1 million. This was the crucial first step that allowed the two public conservation agencies to enter the picture. A number of problems then had to be solved, such as purchasing a \$9 million ranch with only \$4 million immediately available, determining division of lands between the two agencies, and working with local public officials and ranchers who were concerned about rumors of a foreign purchase of the ranch.

Solutions were reached through unprecedented cooperation between the Conservancy's National Office, the Northwest Field Office, Conservancy volunteers in Montana, and representatives of the involved public agencies, as well as representatives of the Bureau of Outdoor Recreation. Throughout the process, the support of Montana's congressional delegation, and especially Senator Lee Metcalf, was invaluable.

All of Mt. Haggin is not yet saved. Nearly 60,000 acres of the ranch must still be purchased. But the job has begun. The magnitude of this accomplishment can best be appreciated by hiking the miles of Mt. Haggin's back country, fishing in the endless trout streams, or perhaps by watching a marsh hawk hunt in a mountain meadow on a spring afternoon.

Also, acquisition of the initial Mt. Haggin acreage has led to still further possibilities for conservation in Montana. For example, the Conservancy was recently asked to consider mounting an effort to save Wildhorse Island in Flathead Lake. Wildhorse, with its own bighorn sheep population, is perhaps one of Montana's most outstanding natural habitats and has long been a target of conservationists. The Conservancy has not yet decided that Wildhorse can be preserved, but it has begun to explore the possibility.

Late in 1976, a meeting was held in Missoula, Montana, to discuss Wildhorse Island. A number of public officials and interested conservationists attended. The first speaker began the meeting by saying, "I have never thought it would be possible to save Wildhorse. But now, after Mt. Haggin, I believe that anything is possible."



Heritage Program UPDATE

Article and photographs by John Nutter

It is winter. In Ohio, ice coats the rocks amid streams where a little water still flows. In the North Carolina mountains, snow lies thick and deep. Along the Gulf Coast of Mississippi, winter has slowed life's activities.

But despite winter, The Nature Conservancy's work continues. A zoologist works his way up a narrow Ohio stream searching for the breeding site of a rare fish, the spotted darter. In North Carolina, a botanist searches above 5,000 feet for the endangered plant, manna grass. A researcher locates an outstanding remnant of beech-southern magnolia forest on Mississippi's coastal plain.

In these three states and five others, Conservancy-hired or -sponsored biologists are searching for the occurrences of endangered and rare flora and fauna as well as for the best remaining examples of native ecosystems. Winter has not stopped the search, for these biologists are working in warm rooms, using maps to locate and plot—for future reference—the reported occurrences of species and communities. In the spring, their mapped information can

be verified in the field, but first other sources of ecological information must be tapped. Generations of professional and amateur naturalists have stored information and specimens in university herbaria, theses, field reports, notes, and collections. Any inclusive and systematic inventory of natural diversity must first incorporate the rich resources of past research and exploration.

The Conservancy's Natural Heritage Programs have been described before in the *News* (see Ecology Forums Nos. 12, 15, 16, and 21). Now, in mid-winter, 1977, a growing number of states across the country are using the Heritage Program model for inventorying their diverse natural features.

Nine consistent and coordinated programs are focusing inventory efforts on over 1,000 vascular plants, over 600 animals, a wide variety of plant communities, and a number of other key ecological elements. The number of mapped and documented localities for these elements grows daily. It is probable that by the end of 1977, the programs will collectively record

between 30,000 and 50,000 places on the landscape where these elements occur. Of course, the records do not represent an equal number of natural areas, for in many cases, plants, animals, and communities cohabit the same site. However, in a Heritage Program inventory, each site is identified by the occurrences of these defined elements. Knowledge of a site's ecological components, together with an understanding of the rarity and endangerment of each component, identifies places which are crucial to the maintenance of ecological variety.

South Carolina

The South Carolina Heritage Program began almost three years ago. After a year's effort in that state, the Conservancy submitted to the Wildlife and Marine Resources Department a final report on its efforts toward establishing a continuing inventory of the state's natural diversity including a list of some 500 areas of importance. The state's response was to hire the Conservancy's program director as its own fulltime natural areas specialist. His task was to con-

tinue the collection, analysis, and application of the ecological data.

As a direct result of the South Carolina Heritage Program, the state legislature, in the spring of 1976, passed legislation for a Heritage Trust with provisions for preserving diversity through recognition, dedication, and ownership in trust of the natural areas. Legislation giving The Nature Conservancy the right to acquire easements and the right to real property tax exemption on its preserves was also passed. Furthermore, in two years as a state-funded program, the South Carolina Heritage Trust Program has preserved almost 28,000 acres through the acquisition of four sites. Other areas are scheduled to be acquired or dedicated.

Mississippi

A Conservancy biologist, in 1974, began to compile a list of plants, animals, and plant communities in Mississippi that deserve protective attention and to survey areas in the state where habitats for those biological elements might still exist. By June, 1975, this effort generated two important results. The first was a confirmation that the Pascagoula River Bottom Hardwood Area, a major Conservancy project in Mississippi, was an outstanding natural area, not only for the state but for the nation. The second result was a document describing the elements of Mississippi's natural diversity on which a future systematic inventory should focus. This classification document, like its equivalent in other Heritage states, became the foundation for the Mississippi Natural Heritage Program which began in February 1976. The program is funded by state and federal monies and is directed by the Conservancy under a contract with the Mississippi

Park Commission. Three biologists and two assistants have already stored enough information on maps and in manual and computer files to "red flag" areas of ecological concern in Mississippi and have begun using the information to serve a widening array of users and applications.

West Virginia

The West Virginia Heritage Program, initiated in late winter, 1975, now is mature enough to become a full operating unit of the state government. The state legislature will soon act on a request for permanent funding for the program.

As in other State Heritage efforts, Conservancy staff will plan for the long-term protection of identified natural areas. Existing legislative and administrative protection mechanisms will be surveyed, and various potential improvements will be identified and recommended. Using up-to-date information on programs and techniques in use throughout the nation (see Ecology Forum No. 19), the Conservancy's national task force will broaden its recommendations in as much detail as requested to assist the state in adopting new approaches. The West Virginia Department of Natural Resources already plans to adopt administrative regulations protecting natural areas on its own property.

Tennessee

Botanists and zoologists in Tennessee have recorded over 2,000 localities for selected species and communities across the state. This information system had no precedent in Tennessee, and the Department of Conservation (the program's sponsor) has realized its value as a planning resource. One Heritage staff member spends all her time applying the ecol-

ogical data to selected federal and state environmental impact statements and other planning processes. By this timely application of well-organized information, environmental conflict can be avoided early in a project's development.

As biologists add and extract information to and from the Heritage information bank, other staff in Tennessee and Washington are developing strategies for protecting the natural areas identified. In July, when the Department assumes operational responsibility for the Program, the Conservancy's role will shift to an advisory capacity.

Oregon

The Oregon Natural Heritage program (see Ecology Forum No. 16) first hired staff members in mid-1973. In 1975, working under a year-long contract from the Oregon Parks Department, the Heritage Program inventoried natural areas on private lands throughout the state. In 1976, under contract with Oregon's new land-use agency, the Land Conservation and Development Commission, the Heritage Program adopted national methodologies for expanding the original inventory to include elements of natural diversity across the state. The information collected from this and previous efforts will be sent to county planning offices so that land-use decisions at the local level can for the first time include consideration for natural areas. In Washington and Idaho, public officials and private individuals have expressed interest in the Oregon Program.

New Mexico

Early in 1976, the National Office began training staff for New Mexico. By late fall, the program was receiving three or four requests per week for in-

formation and had hired part-time researchers to compile information on plants and mammals. In July, 1977, the State Game and Fish Department expects to take over the program as part of its non-game effort.

Tennessee Valley Authority

Heritage Programs share common methodologies for compiling, storing, and analyzing information. In the southeast, with the addition of Heritage Programs in the Tennessee Valley Authority region and in North Carolina, the Conservancy will soon have the capability to obtain an overview of the status of ecological elements in the region. To take one example, the regional status of Fraser's sedge can be determined by analyzing the data banks of three adjacent states (Tennessee and the Carolinas) as well as that of the TVA which covers 201 counties in a seven-state region. The Tennessee Valley Authority staff, which is inventorying endangered threatened species, has been trained to install and use the multi-structured information system in conjunction with other data bases used for integrating land-use planning in the region.

North Carolina

In North Carolina, the academic and natural areas communities have been especially enthusiastic and supportive of the program. Due to the amount of information which has already been collected in North Carolina and to the superior methodology of the Heritage Program for compiling and analyzing this information, the North Carolina staff is already generating lists of areas which deserve protective attention.

North Carolina has also become a model state for imple-



Debra Walton, Data Specialist for the Ohio Program, marks an element occurrence on a map.

menting Heritage Program information. A field representative was hired in the fall of 1976 to begin the process of making the private sector aware of the need to protect and preserve natural areas identified by the state-operated Heritage Program.

Ohio

The newest Heritage Program is in Ohio, a state well known for its strong natural areas legislation. Like that of other states, Ohio's information is scattered throughout various institutions, files, and data centers around the state. While Heritage researchers may begin their inventory by gleening information from publications and museums, the most important sources of ecological data are knowledgeable individuals. These individuals must volunteer their data if the Heritage Program is to be successful.

The motives for this cooperation are many. People who supply information can, through computer-generated "directories," review and edit their own material—as well as related in-

formation from other sources—as it is filed in the Heritage system. In this manner, the data bank will be continuously updated, and the cooperation between researchers, field workers, and individual volunteers will be strengthened.

Ultimately, the primary source of data is the natural land itself. However, it is virtually impossible for a small Heritage staff to spend its time effectively in the field. The staff can only be efficient if it guides the field work of others, primarily volunteers. In all eight Heritage states, knowledgeable field surveyors are used to field check the information mapped from secondary "sources," and to search other areas of the state where critical natural elements may occur. Since the information collected by the field surveyors for the inventories is used to determine protection priorities and actually protect and preserve natural areas, volunteer surveyors are rewarded twice-over for their efforts. Thus, the tempo of their work has not slowed in the winter, and it will continue into the spring.



TEACHING RESPECT FOR NATURE AND LOVE FOR THE LAND

The Educational Activities of the Long Island Chapter

by Barbara Conolly

Long Island, with its highways, airports, shopping malls, beach resorts, housing developments and highrise apartment complexes, seems an unlikely place for a group dedicated to preserving natural land. Yet, since its establishment in 1954, the Conservancy's Long Island Chapter has set aside 36 natural areas and has been one of the Conservancy's most active chapters.

Because its jurisdiction is almost entirely within a large metropolitan area, the Long Island Chapter is unique among Conservancy chapters. Its headquarters is only 25 miles from New York City, and one of its preserves is within 2 miles of the city line. After concentrating on acquiring land during its first ten years, the Chapter began to realize that its preserves—all of which are within a half-hour's drive from large population centers—could and should be used by the public in a significant way.

As a result, a number of educational programs have evolved in the past 12 years, and most of the Chapter's preserves and the headquarters are now being used for outdoor education.

While the Chapter is, of course, still acquiring as many high quality natural areas as possible, its main concern now is how to teach people to cherish the land. The Chapter's belief is that each of its preserves is a true sanctuary, a place of peace and inspiration. It does little good to preserve 30 or 40 pieces of prime land if love and respect for the land have not been implanted in the hearts of the people who will live near a preserve, walk through it, and whose children will eventually inherit it as their sanctuary.

Respect and love for our natural land is best learned from someone who cherishes it. The Long Island Chapter is fortunate to have in its ranks a

number of people who are gifted with the ability to convey to others their love and knowledge of the land.

One of these people is Sandy Kaufman. With the help of an enthusiastic staff, Sandy conducts the summer nature program for children which the Chapter operates in conjunction with the Cold Spring Harbor Laboratory at Uplands Farm, the Chapter's headquarters. Uplands Farm has ample meadow, briarpatch, secondary woods, and mature woods on its 54 acres. An easy walk down the hill from the farm is St. John's Pond Sanctuary, which contains a freshwater stream, pond, and swamp. Just across the road from St. John's are the salt marsh, sand bar, and salt bay of the Laboratory. Last summer, 360 children, aged 6 to 16, filled 18 classes and studied everything from bugs to birds to boat shells.

Another gifted teacher is Otto Heck. He has been teaching the adult nature course for the last 19 years, first for the Laboratory and now for the Conservancy. A former Long Island naturalist, Mr. Heck is currently an assistant professor of biology at Trenton State College, New Jersey, and is working on his doctorate in ecology. During July and August, he led 32 students through a course dealing with almost every natural history discipline.

The Long Island Chapter also offers instruction in the management of Chapter sanctuaries to people who have their own classes or groups to teach. Called the Educational Assistants' Workshop, the class meets three times in the fall and three times in the spring—always outdoors—to familiarize the students with different Long Island environments at various times of the year. The Chapter also holds occasional workshops to introduce local Audubon Society leaders to some of the Conservancy's smaller and lesser known preserves. The workshops are led by Mrs. Joseph B. Conolly who is an officer of the Chapter and has taught ecology at the New York State Planting Fields Arboretum for several years.

A new development since 1975 has been the Fall Environmental Program for high school students. Co-sponsored by the Laboratory and the Long Island Chapter at Uplands Farm, the 1976 course was held on eight Saturday mornings during October and November and covered such topics as natural history photography, mammalian ecology, and marine biology. The program was organized by Sandy Kaufman, and college-level instructors provided advanced teaching for the course.

Also during 1976, the Chapter launched a bi-centennial project, the Heritage Field Study Program. Students from Pace College visited cultural



and historical sites on Long Island, and then participated in field study at Uplands Farm in the natural history of Long Island. The course was conducted by Charles Bassett, Executive Director of the Long Island Chapter and a limnologist with experience in various related fields of biology.

In addition to all these specific educational programs, in 1976 the Chapter's preserves were used by 5 colleges and universities, 6 high schools, 8 elementary schools, and 11 miscellaneous groups such as garden clubs and Audubon Societies. The Chapter also continued to provide additional services, such as offering its facilities to conservation groups, sending exhibits to craft and flower shows, and providing speakers for the Boy Scouts, planning boards, the local TV station (WHLI), and other local groups. The Executive Director and members of the Board of Trustees also attend various councils on land use, environmental management, and natural resources.

The Long Island Chapter is responsible for several publications as well. *Sanctuary* magazine, edited by Mrs. William P. Carl, is the official Chapter publication and comes out quarterly. In addition, the Chapter prints the less formal *Newsletter*, which provides information on Chapter activities, and has published two booklets: *The Natural*



Far left: Chapter members enjoy a hike at Blydenburgh Sanctuary. Left: At St. John's Pond Preserve, Otto Heck conducts an adult nature study course.

History of Long Island by Samuel Yeaton, and *Common Grasses of Long Island* by Art Schneier.

Each year the Chapter holds four hikes open to all members and their guests. These have been so successful that as many as 325 people attended one hike, and there are seldom fewer than 80. So the hikes won't seem like Times Square on New Year's, the Chapter uses large areas such as state or county parks. Between 10 and 20 experts in the natural sciences accompany the hikes so that the group can split into smaller groups, each with a leader, and go in different directions.

To date, one of the Chapter's most successful ventures has been a 30-station, self-guided nature trail at Uplands Farm. Accompanied by a detailed study booklet, the trail passes through a meadow, an emerging woodlot, a mature woods and a hedgerow edging a field. The pond, swamp, and stream down the hill at St. John's will eventually be added to the nature trail.

However, the Long Island Chapter's proudest achievement is the Uplands Farm Environmental Center. Comprised of buildings donated by Mrs. George Nichols, Uplands Farm is developing into a first-class environmental center for gathering and disseminating natural history information on Long Island. The north wing of the main building

has been transformed into classrooms. It also houses the supplies and research facilities for both the senior and junior nature programs and the fall high school series. The auditorium in the south wing is being turned into an audiovisual presentation area. Other facilities included in the buildings are a reception and exhibition hall, an art gallery, a darkroom, a nature library, and offices.

For the future, the Chapter plans to maintain its existing programs and to create others as the need arises. Most important, the Chapter's 36 sanctuaries will continue to be protected and used wisely; those that are fragile will always be used very lightly. The Chapter has come to realize that being a collector and protector of land is not enough; it is equally important that the Chapter continue to serve as a "bridge" between that land and the people.

The Chapter's programs foster a respect for nature and love for the land that can be seen in many ways: in the wide, discovering gaze of young eyes; in the delighted cry, "I see it!;" or in the writing, art, or photography of those who have been touched by the beauty of the natural world. But whatever form the appreciation takes, it means to Long Island Chapter members that they are truly fulfilling their role.

THE BIG CORPORATION AND THE TINY SALAMANDER

By Lynn Mohn

A tiny zigzag salamander halts on a rock, then darts out of sight. You won't find this creature anywhere else in South Carolina. The same is true of prickly green *Ribes echinellum*, a shrub so rare it has no common name, so rare you can't find it anywhere else in the world except Florida.

These rare species live at Stevens Creek, South Carolina. Through a statewide natural areas inventory, the South Carolina Heritage Trust found the property and recommended it as a top preservation priority. The Nature Conservancy learned that The Continental Group, Inc., (formerly Continental Can Company)—the world's largest packaging firm—owned the land, and approached the corporation about a gift. In addition, the American Land Trust named Stevens Creek as its first preservation goal in South Carolina.

On December 16, 1976, The Continental Group through its member Continental Forest Industries acted to protect the salamander and the other rare, endangered, and unusual species. It donated the 138 acres to the Conservancy under the auspices of the American Land Trust. Stevens Creek then was transferred to the State of South Carolina for management.

Other corporations also are continuing to take advantage of the opportunity offered through the American Land Trust's two-year campaign to save vital portions of our nation's natural land heritage. Since the last *News*, Metromedia, Inc., donated 715 acres on the top and slopes of *Mt. Wilson*, the tallest peak overlooking Los Angeles, California. In its third gift through ALT, Union Camp Corporation donated *Crescent Lake*, 2,850 acres of clean waters and natural shoreline in Florida, valued at nearly \$1 million. In addition, Citibank loaned the Conservancy \$8.5 million to purchase the last major undisturbed wetland on Long Island, New York—*Napeague Bay*, 1,364 acres identified as a top priority by ALT.

Further support of the Trust has been granted

recently by the R.K. Mellon Foundation, U.S. Steel Corporation, Charles Engelhard Foundation, Travelers Insurance Companies, Gulf Oil Foundation, and Associated Springs.

Private citizens, too, are helping the Trust's drive to acquire at least one prime area in each state. Mr. and Mrs. Christian Heurich, Jr., of Washington, D.C. recently donated 10 islands in the Potomac River, above Great Falls, Maryland, 22 miles northwest of the nation's capital. Their preservation will further protect the Chesapeake and Ohio Canal National Historical Park.

As the grassroots arm of the American Land Trust, the 51 state federations and 400,000 members of the National Council of State Garden Clubs are now thoroughly involved in their volunteer program. More than 13,000 local garden clubs are using varied ways to raise money for 33 land projects and to create publicity for ALT. For example, the Country Lane Garden Club of Brookfield, Wisconsin, stitched a colorful Bicentennial quilt, each of its 50 squares embroidered with a state flower. By holding a raffle for the quilt, the club was able to donate its \$251 earnings to the Trust. When the Pineglades Garden Club in Pensacola, Florida, won a blue ribbon and cash prize for its county fair booth, the prize money was given to the Trust. Many other clubs are holding arts and crafts bazaars, baked goods and plant sales, raffles, card parties, home and greenhouse tours, and rummage sales, and are donating their earnings to ALT.

In true Christmas spirit, many people gave Honorary Trustee certificates to their friends and families. The certificates, which accompany special one-year memberships in the Conservancy and are granted for donations of \$10 or more, were found under dozens of Christmas trees. Birthdays, anniversaries, and other special occasions also continue to draw contributions. Gifts to the American Land Trust—cash and land—now number in the thousands and totaled \$40 million worth at year's end . . . all donated so that the best remaining samples of this nation's land heritage can be preserved.

NOTE: *Challenge to a Nation*, the 17-minute, 16mm color-and-sound film on the American Land Trust, narrated by Hugh Downs, is available for free loan on request. Contributions, inquiries, and film requests can be sent to: American Land Trust, P.O. Box 2076, Arlington, VA 22202. Executive Director: George S. Wills. Phone: (703) 841-5376. Donations are tax-deductible. Please make checks payable to The Nature Conservancy.



Ecology Forum

No. 22

by David M. Blanchard and
Anne M. Byers

THE IMPORTANCE OF MASTER PLANS

The Conservancy has been confronted by many direct threats to the integrity of its lands. Public menaces include the inundation of land by rivers dammed for power or water supply, condemnation for transmission line rights-of-way, or the routing of interstate highways or secondary roads. Other threats originate from the private sector, such as the theft of plant specimens and commercially valuable animals, poaching, vandalism, rare species collecting by scientists, overuse by educators, misuse by the general public, adverse possession, and loss of tax exemption.

Indirect threats to Conservancy preserves are equally destructive. For example, the elimination of natural predators permits overpopulation of certain prey, such as deer, to occur. The introduction of exotic species, like Japanese honeysuckle, disrupts natural succession and eliminates the indigenous features of an area. Controlling natural forces—such as prairie fires which stimulate the growth of new grasses in the spring—eliminates the processes that are a part of the evolution of a natural ecosystem. In addition, the cumulative pollution of air, water, and land, as well as the continuing disruptive effects of past disturbances, can seldom be arrested once they have begun.

As the Conservancy encounters these threats (public and private, direct and indirect), it becomes increasingly apparent that merely acquiring a parcel of land is not in itself sufficient for achieving its preservation objectives. Physical activity on a preserve—such as posting, patrolling, mowing, planting, etc.—and the generation of public support for land preservation are not the sole answers either. How specifically does the Conservancy protect its preserves from these threats, or better yet, how does it prevent threats from ever developing?

The Nature Conservancy owns approximately 670 preserves. Establishing an appropriate program of protection and use for each area is not a simple task, for a variety of reasons. First, each preserve is unique, each has different combinations of natural features. Second, existing Conservancy-paid staff and financial resources are insufficient to safeguard these thousands of acres. Finally, there is a great shortage of information on the natural components of Conservancy preserves and the communities which surround them. To counteract these three constraints, the Conservancy relies on two things: its local chapters and volunteer preserve committees that staff and manage its lands, and, secondly, the development of Master Plans which are the key tools for the stewardship of every preserve.

Master Planning is the process that provides a framework and a definition for the type of program that will be used to protect a natural area, a program that is tailor-made to fit a preserve's specific needs. Furthermore, a Master Plan determines exactly what the Conservancy's volunteers will do on each preserve, as well as how the organization's goals can be transferred into specific protection objectives for an individual preserve.

The first phase of the Master Planning process is gathering and organizing the information collectively known as the "ecological inventory," then distilling this data from a large mass of amorphous general information (such as the fact that there are birds on the preserve) to a manageable amount of highly relevant data (as an example, that there is a great blue heron nesting in the northern swamp, marked by an "X" on a map of the area). This sort of specific information points out an area's special protection needs and suggests opportunities for positive use. For example, knowing the location of a rare plant can prevent its inadvertent destruction when laying out a new trail. In addition, information gathered and organized in this fashion provides direction for the volunteer committee's actions, allowing it to develop programs

(continued next page)

of protection, scientific research, education, and aesthetic enjoyment of the preserve.

The second phase of the Master Planning process is the actual policy making, that is, the creative process of working with a given set of natural and human conditions to accomplish specific objectives with the most efficient use of limited resources. The plan then becomes the committee's blueprint for the preservation and use of a dynamic system.

The Master Plan itself is equally important as a record of valuable information and sound policies that might otherwise be lost or forgotten. Such a document provides long-term continuity to the volunteer committee's actions, and prevents duplication of efforts or waste of human and financial resources. The Conservancy hopes that it will eventually have a Master Plan for each of the preserves it retains.

Master Plans give the Conservancy hope that all the energy dedicated to the protection and proper use of a natural area in 1977 will continue to contribute to that cause in 2077, and beyond. Most important, the successful implementation of a Master Plan is the realization of the broad ideals and objectives of The Nature Conservancy: the preservation of ecologically significant land and of biological diversity—for the purposes of science, education, human enjoyment, and for the preservation of life itself.

UPCOMING ISSUES

This year the Conservancy's 1976 Annual Report will be sent to *all* members as a special edition of *The Nature Conservancy News*. The report will contain a detailed, illustrated review of the Conservancy's projects and program activities of the past year. Therefore, the spring issue of the *News* will not feature the "Year in Review" as it has in previous years; it will, instead, be mailed in early June and will be a special issue highlighting prairies.

IF YOU MOVE...

Please immediately notify the Membership Department of the National Office of your new address if you move. The Post Office does not forward third class mail and we would like to insure that your receipt of the *News* is not interrupted.

PHOTOGRAPHS: Susan Bournique, p. 6; Michael P. Gadomski, pp. 4, 7, 8; Montana Department of Fish and Game, pp. 15 (left), 16 (left); Chadeayne Roush, pp. 14, 15 (right), 16-17; Richard E. Warner, p. 11.

JOHN B. OAKES CITED

John B. Oakes, a member of the Conservancy's Board of Governors and Editor of *The New York Times* Editorial Page, recently received the National Audubon Society's top environmental award, the Audubon Medal. The award was presented to Oakes on November 9 at the Society's annual New York dinner.

Oakes was cited as "the architect of the conservation policy of *The New York Times*." According to Audubon officials who announced the award, Oakes has consistently championed the cause of environmental protection, even in the years before "environment" became a household word. Oakes has spoken out against the uses of DDT and other harmful pesticides and has been a firm advocate of better air and water pollution control and policies, not just for New York City but for the nation as well. He has been a persistent spokesman on the need for toxic substances control and a leader in the effort to clean up the Hudson River from contamination with PCB's and Lake Superior from pollution with cancer-causing asbestos in the taconite tailings being dumped there.

Awarded only when the occasion warrants it, not necessarily on an annual basis, the Audubon Medal is offered by the Society's Board of Directors for distinguished individual service in conservation. It has been presented 24 times since its inception in 1946 to such individuals as Rachel Carson, William O. Douglas, Stewart Udall, Maurice Strong, and Conservancy Board member Governor Tom McCall.

Richard G. Traurig

Richard G. Traurig, senior staff legal advisor and a Conservancy vice president, died suddenly in mid-December. Mr. Traurig, who earned his Juris Doctor at the University of Connecticut and held an advanced degree in Tax Law from the University of Miami, had been on the Conservancy staff since 1970.

He had extensive knowledge of real property law and was involved in or reviewed the majority of all Conservancy land conservation projects. Dick Traurig was a kind, gentle, and intelligent man who will be missed by both his staff colleagues and the many volunteer attorneys with whom he worked.

Prints Available



The cover of this edition of the *News* features a drawing of a great horned owl by wildlife artist, William Zimmerman. The owl is perched at the edge of a bluff overlooking Big Walnut Valley in Indiana. A National Natural Landmark, the valley has been recognized as the most critical unprotected natural area in the state.

In an effort to preserve this vital area, the American Land Trust arranged for its purchase at a cost of \$100,000. The sale took place during the last three days of 1976. Through the AMAX Foundation, AMAX, Inc., is providing a 3-to-1 matching grant totaling \$75,000 for purchase of the valley. To raise the remaining \$25,000, AMAX, Inc., has commissioned William Zimmerman to complete a painting from this preliminary sketch of his great horned owl. The painting will be given to the State of Indiana, and the artist is contributing the entire

edition of 500 signed and numbered prints that will be made of the painting. Each gift of \$50 to save Big Walnut Valley will produce a \$150 gift from AMAX, Inc., and the donor will receive one of the color prints.

William Zimmerman is a nationally known wildlife artist and a native of Indiana. His work has been displayed in galleries and museums throughout the country, and many of his paintings have appeared in a variety of nature publications. Mr. Zimmerman is probably best known for his folio, *Waterfowl of North America*, which was published in 1974 by the Frame House Gallery of Louisville, Kentucky. He lives in Nashville, Indiana, with his wife, Judy, and their two children.

The signed and numbered prints (approximately 14" x 24") of the great horned owl at Big Walnut Valley will be available by May, 1977. If you wish to obtain one, please mail a check for \$50 or more, made payable to The Nature Conservancy, to: Indiana Chapter, The Nature Conservancy, Route #1, Nashville, Indiana 47448. (Please note: Only the amount of a gift above and beyond \$50 [the value of the print] qualifies as a tax-deductible donation). Since it is anticipated that all 500 prints will be spoken for by their day of issue, mail your check as soon as possible; it will be returned if all prints have been requested. This is the first public announcement of their availability.

STAFF NOTES

L. Gregory Low, former Conservancy Vice President for Finance and Planning, has been named Executive Vice President of the Conservancy by the Board of Governors. He replaces Jon Roush, who after three-and-a-half years as Executive Vice President, will take on the challenge of developing a comprehensive training program for the Conservancy staff. In addition to serving as a part-time special assistant to the president, Dr. Roush will be working on two books.

The Conservancy is expanding its Development Department. Mark N. Beach was appointed Director of Development in October, 1976. Mr. Beach previously filled the same post at the National Trust for Historic Preservation. Two Assistant Directors have joined the Development staff: Froelich Rainey, who came to the Conservancy from the University of Pennsylvania where he recently retired as Director of the University Mu-

seum, is responsible for coordinating efforts on the new Land Preservation Fund campaign. Charles L. Scott III, who has been with the Conservancy since 1972 as Director of the Connecticut Chapter, was also appointed an Assistant Director of Development. Thomas M. Beers has taken on duties as Director of Membership Development for the Conservancy. Mr. Beers is retired Vice President and Associate Secretary of the National Geographic Society.

John Humke, previously Vice President for Government Programs, has returned to his native midwest to fill the position of Midwest Regional Vice President in the Conservancy's Minneapolis office. The post was previously held by Geoffrey Barnard.

Dorothy Innes has retired as Secretary to the Board of Governors. An employee of the Conservancy for over 10 years, Mrs. Innes was made a Life Member at the last meeting of the Board of Governors.

VOLUNTEER NOTES

CHAPTER MEETS ITS MEMBERS

This past fall, the Southern California Chapter began an operation known as "We are coming YOUR way." The chapter asked one member in each of four outlying areas surrounding metropolitan Los Angeles to plan an informal event so that representatives of the chapter board might meet personally with local members.

To date, as a result of these events, the chapter has found members willing and able to serve on the chapter board, and has established the nucleus for a vital new county committee. The meetings have also generated outside organizations' interest in a local preserve, an offer of 160 acres of virgin prairie in South Dakota, a generous gift to the ongoing Desert Tortoise Preserve project, and offers of new exposure for this project to outside organizations.

Barbara Horton, the chapter's chairwoman, said, "Members and trustees now not only know the other half of the team is there, but we feel its presence. I recommend this procedure to other chapters as an effort worth making."

POSTCARD SALES HELP RAISE MONEY

To raise money for its Acquisition and Maintenance Fund, the West Virginia Chapter is selling scenic color postcards depicting Conservancy projects in the state. The cards are sold in packets of eight, including two cards each of four different scenes: Cranesville Swamp, the chapter's first project; Greenland Gap, a donation; Holly River Falls, property acquired for the West Virginia Department of Natural Resources; and Dolly Sods, an acquisition for the U.S. Forest Service.

A paragraph on the back of each card describes the project and promotes the Conservancy and its West Virginia Chapter. The cards, packaged in a white packet printed with the chapter name and the Conservancy logo, sell for \$1.00 per packet plus 25¢ if mailed.

MINNESOTA MEMBER WINS MEDAL

Al Johnson, former Chairman of the Minnesota Chapter Board of Trustees and an active member of the chapter for many years, was recently awarded the Minnesota State Horticultural Society's highest award, the Bronze Medal. Mr.

Johnson, who has developed many new strains of trees, shrubs, and flowers, has been a research associate at the University of Minnesota Landscape Arboretum since 1957.

STEWARDSHIP AWARD GIVEN

The Iowa Chapter presented the Conservancy's Stewardship Award to Wayne Mark shortly before his death. Mr. Mark, a lifelong conservationist, had worked toward the preservation and wise use of natural lands for over a quarter of a century. His gift of the Mark Sand Prairie to the Conservancy will serve as a lasting memorial to his dedication.

PHOTO CONTEST ANNOUNCED

To encourage greater member participation in the 1977 Annual Meeting, the Conservancy plans to hold a preserve photography contest open to all chapters. Chapter members will have the opportunity to portray through photography their land preservation activities, and winning entries will be shown at the Annual Meeting. In addition to providing an interesting portion of the Annual Meeting, it is hoped that the contest will result in the creation of a slide presentation for later use by chapters.

First and second prizes, as well as one or more honorable mentions, will be awarded. Rules of the contest are:

1. Each chapter may enter up to five 35mm color slides suitable for use with a Kodak carousel slide projector.
2. Slides should depict Chapter projects and be accompanied by written statements of not more than 250 words describing the slides and the projects.
3. Entries will be judged on the basis of the interest of the written statement and the slide.
4. All entries must be received no later than April 1, 1977, at:

Chapter Preserve Photography Contest
c/o Mr. G. William DeSousa
21 Silver Brook Road
Westport, Connecticut 06880

5. Representatives of the winning chapters will be asked to present their slides at the Annual Meeting.
6. All slides and presentations submitted, regardless of whether they win a prize, will become part of a slide program to be loaned to Conservancy meetings.

All chapters are urged to participate in the contest. For further details, please contact your chapter chairperson.

1977 ANNUAL MEETING

October 20-22 • Charleston, South Carolina

The Conservancy's 1977 Annual Meeting will treat members to an especially interesting and informative 3-day series of programs featuring the chapters' vigorous protection activities, results of the innovative State Heritage Programs, and the exciting program of the American Land Trust.

The meeting will be held in Charleston, South Carolina, on October 20 to 22, 1977. The ambiance and charm of Charleston, its historical attractions, recreational facilities, and ideal climate make the city a perfect location. Also, it is near two of the Conservancy's most outstanding projects, the Santee Coastal Reserve and the Four Holes Swamp. Both areas will be visited on field trips. The State of South Carolina itself is a noteworthy location for the meeting because it was one of the first states to undertake a cooperative Heritage Program with the Conservancy.

Please make your reservations early and join us in Charleston on October 20.

TENTATIVE REGISTRATION FORM

Please return this form to The Nature Conservancy (Annual Meeting Registrar, 1800 N. Kent Street, Arlington VA 22209) as soon as possible. Attendance at all events cannot be guaranteed for registrations received after July 6, 1977. On receipt of your registration, details and additional information will be mailed to you.

Space is limited and consequently registrations will be accepted in order of receipt of check.

Name _____

Address _____

(Zip Code)

Chapter _____

Arrival Date _____ Departure Date _____

Please check your membership classification:

☐ Conservancy Member ☐ Board Member ☐ Chapter Representative ☐ Chapter Chairperson

Deadline for registration: September 7, 1977. No refunds after September 7, 1977

The all-inclusive registration fee is \$75.00. You will be the guest of several members for four occasions. Fee includes all costs except hotel room, breakfasts, and lunch on Thursday.

Please indicate on the reverse side the events you plan to attend.

Accommodations:

Mills Hyatt House — Headquarters

Single \$34/Double \$40

Other nearby hotels

From \$10 to \$25

Golden Eagle Motor Hotel — 4 camper sites available

From \$3 to \$5.75

Complete details and hotel reservation cards will be sent on receipt of your registration.

Climate: Average temperature range in October is 67-75 degrees. Percent of sunshine is 75.2.

For evening occasions, long or short dinner dress for ladies; coats and ties for gentlemen.

1977 ANNUAL MEETING

October 20-22 • Charleston, South Carolina

TENTATIVE SCHEDULE

Wednesday, October 19

5:00-8:00 PM ☐ Early registration — Mills Hyatt House

Guided tours of historic Charleston by private car with visits to several homes and gardens may be arranged for any time before or after the meeting by writing Mrs. I. Majo Reed, 103 Tradd Street, Charleston, South Carolina 29401. \$15 per hour; \$20 for 2 hours; \$7.50 each additional hour. One to four persons to a car.

Guided tours of the Marine Resources Center may be arranged for any time before or after the meeting by writing the Director, Dr. Edwin B. Joseph, Box 12559, Charleston, South Carolina 29412. No charge. The Center is at Fort Johnson on Charleston Harbor, about 20 minutes by car or taxi from the Mills Hyatt House.

A limited number of float trips at Four Holes Sanctuary may be arranged before or after the meeting by contacting Tim McCall at the Conservancy's Atlanta office, telephone (404) 659-0240.

Thursday, October 20

8:00-11:00 AM Registration — Mills Hyatt House

Please check whether you would prefer to take Tour A or B on Thursday and those events you plan to attend thereafter. Your \$75 registration fee covers them all.

TOUR A ☐

9:00-11:00 AM Guided walking tour of historic Charleston

Lunch on your own

12:00 noon Bus trip to and guided tour of Four Holes Sanctuary, one of the last primeval black-water swamps

4:00 PM Return by bus

TOUR B ☐

8:00 AM Depart by bus for South Carolina Marine Resources Center

9:00 AM Tour of Center

11:00 AM Boat trip to Capers Island, a classic barrier island; picnic lunch and guided tour

3:00 PM Return by boat to Marine Resources Center

4:30 PM Return by bus

6:45 PM ☐ Cocktails — Mills Hyatt House

7:30 PM ☐ Dinner — Ballroom, Mills Hyatt House
Welcome by the Governor of South Carolina,
The Honorable James B. Edwards (tentative)

Introduction of the South Carolina State Heritage Commissioner, Mr. Joseph B. Hudson, and the Board of Governors of The Nature Conservancy

Presentation of 1977 Oak Leaf Awards

Friday, October 21

8:45 AM ☐ Depart by bus for Santee Coastal Reserve — 23,000 acres of cypress trees, salt and freshwater marshes, habitat of bald eagles, osprey, egrets, and other wildfowl

12:30 PM Shellfish picnic, courtesy of the South Carolina Wildlife and Marine Resources Department

3:30 PM Return to hotel

4:30-5:30 PM ☐ Presentation by a panel of members of prize-winning chapter projects, old and new, with slides and descriptions — Mills Hyatt House

6:30 PM ☐ Cocktails as guests of Mrs. W. L. Lyons Brown and Mrs. Thomas M. Waller — South Carolina Society Hall

7:30 PM ☐ Small private dinners at Colony House as guests of members of the Board of Governors

Saturday, October 22

8:45-10:45 AM ☐ Annual Business Meeting
Mr. William D. Blair, Jr., Chairman of the Board of Governors, presiding

Election of officers

Report by Mr. Patrick F. Noonan, President, The Nature Conservancy. Illustrated with slides of new projects and programs.

11:00 AM ☐ Depart by bus from Mills Hyatt House for Drayton Hall, a National Trust for Historic Preservation property

12:30 PM Depart Drayton Hall

12:45 PM Arrive Middleton Place. Oldest landscaped gardens in America

1:00 PM Picnic lunch under the live oaks

2:00 PM Tour of Middleton Place and gardens

4:00 PM Return to Mills Hyatt House

6:30 PM Cocktails — Hibernian Hall, an historic building of 1841, adjacent to Mills Hyatt House

7:15 PM ☐ Annual Meeting Dinner — Hibernian Hall

Mr. William D. Blair, Jr., Chairman, presiding
Guest speakers: The Mayor of Charleston and
The Honorable Nathaniel P. Reed, Former
Assistant Secretary of the Interior and
Honorary Chairman, The American Land Trust

YOU CAN HELP

The five preserves listed below were purchased by Conservancy chapters and committees using money loaned from the Conservancy's Project Revolving Fund. Volunteers are fund-raising to repay the loans, and the projects are close to completion—but now they need your help. In most cases, just a few dollars are needed. Please give generously to the project of your choice. Your support *can* make a difference.

Beaverbrook Valley, Massachusetts—81 acres with hemlock forest, esker, and 7-acre pond. Balance: \$1,567.

Douglas Mountain, Maine—150-acre forest with outstanding views of White Mountains of New Hampshire and Lake Sebago region. Balance: \$4,100.

Highvista, New York—Old-growth hardwood forest and scenic gorge with small waterfalls and pools; 136 acres. Balance: \$4,491.

Hooks-Reid Bog, Texas—8-1/2 acre bog supporting 3 species of orchid, a luxuriant growth of ferns, and a number of insectivorous plants. Within the Big Thicket. Balance: \$211.

Mt. Vernon Prairie, Missouri—40 acres of native tallgrass prairie; habitat for scissor-tailed flycatcher, uncommon in Missouri. Balance: \$5,100.

Enclosed is my contribution of \$ _____ to the project(s) indicated below:

____ Beaverbrook Valley, Massachusetts
____ Douglas Mountain, Maine
____ Highvista, New York

____ Hooks-Reid Bog, Texas
____ Mt. Vernon Prairie, Missouri

Name _____

Address _____

City _____ State _____ Zip _____

Contributions are tax-deductible, and contributors of \$10 or more will receive a free copy of the Conservancy's *Preserve Directory*. Please make checks payable to The Nature Conservancy.

THE NATURE CONSERVANCY

Regional, Field, and Chapter Offices:

NON-PROFIT ORG.
U.S. POSTAGE
PAID
PERMIT NO. 9388
WASHINGTON, D. C.

Eastern Regional Office
294 Washington Street, Room 850
Boston, Massachusetts 02108
(617) 542-1908

Indiana Field Office
Route 1, Box 115
Nashville, Indiana 47448
(812) 988-7547

Southeast Regional Office
148 Cain Street, N.E.
Suite 450
Atlanta, Georgia 30303
(404) 659-0240

Northwest Field Office
1234 N.W. 25th
Portland, Oregon 97210
(503) 228-9561

Connecticut Chapter
Science Tower, Box MMM
Wesleyan Station
Middletown, Connecticut 06457
(203) 344-0716

Midwest Regional Office
325 West 15th Street
Minneapolis, Minnesota 55403
(612) 871-6231

Michigan Field Office
Suite F, 531 North Clippert Street
Lansing, Michigan 48912
(517) 332-1741

Long Island Chapter
P.O. Box 72
Cold Spring Harbor, New York 11724
(516) 367-3225

Western Regional Office
425 Bush Street, 5th Floor
San Francisco, California 94108
(415) 989-3056

Ohio Field Office
1504 West 1st Avenue
Columbus, Ohio 43212
(614) 486-4194

Maine Chapter
51 Chapel Street
Augusta, Maine 04330
(207) 622-3101

New York Development Office
36 West 44th Street, Room 307
New York, New York 10036
(212) 869-9532

Rocky Mountain Field Office
820 Sixteenth Street, Suite 420
Denver, Colorado 80202
(303) 623-8088

Eastern New York Chapter
P.O. Box 22
Altamont, New York 12009
(518) 861-6860

Mid-Atlantic Field Office
1800 North Kent Street
Arlington, Virginia 22209
(703) 841-5300

Hawaii Field Office
P.O. Drawer 4528
Honolulu, Hawaii 96813
(808) 531-1095

Illinois Chapter
666 N. Lake Shore Drive
Suite 1919
Chicago, Illinois 60611
(312) 787-1791



Land conservation through private action.

National Office
1800 North Kent Street
Arlington, Virginia 22209
(703) 841-5300

102324R 1B 00 006 7707
MISS HAZEL A JOHNSON
770 WILLIAMS ST
NEW LONDON CT 06320